

Title (en)

Digitally controlled A.C. to D.C. power conditioner that draws sinusoidal input current.

Title (de)

Digitalgesteuerter Leistungsgleichrichter, der einen sinusförmigen Strom zieht.

Title (fr)

Redresseur de puissance à commande numérique tirant un courant d'entrée sinusoidal.

Publication

**EP 0255258 A2 19880203 (EN)**

Application

**EP 87306218 A 19870714**

Priority

US 89191186 A 19860801

Abstract (en)

An A.C. to D.C. power conditioner, which draws sinusoidal input current utilizes digital proportional-integral control to provide output voltage regulation by adjusting the gain of a current program loop. The current program loop controls the state of a power switch to force the instantaneous average current in an inductor to follow the instantaneous rectified line voltage. Variable hysteresis control provides noise immunity by increasing the ripple current in an iron-cored filter inductor when the instantaneous input voltage is high. Digital proportional-integral (PI) control provides output voltage regulation by adjusting, in discrete steps, the gain of the current program loop. A multiplying digital-to-analog converter serves as an interface between the voltage regulation loop and the current program loop. The sampling rate of the PI controller is determined by the input line frequency, which allows good transient response to be obtained. The current program loop forces the current drawn by the power conditioner to follow the input A.C. line voltage, thereby electronically emulating a resistor.

IPC 1-7

**H02M 3/157**; **H02M 7/217**

IPC 8 full level

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CPC (source: EP US)

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Cited by

EP1536548A4; US5245522A; EP0486875A3; EP0671808A3; EP0430715A1; EP1710899A3; EP1717939A3; EP0327512A1; EP2166657A4; EP1593195A4; EP0540948A3; CN115728530A; WO9321683A1; WO0045502A1; US7408790B2; US7525821B2; US7564700B2

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